10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Anti-Alkaline Phosphatase Antibody

Catalog # ABO10498

Product Information

Application	WB
Primary Accession	P08289
Host	Rabbit
Reactivity	Mouse, Rat
Clonality	Polyclonal
Format	Lyophilized
Description	Rabbit IgG polyclonal antibody for Alkaline phosphatase, tissue-nonspecific isozyme(ALPL) detection. Tested with WB, IHC-P in Mouse;Rat.
Reconstitution	Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

Additional Information

Gene ID	25586
Other Names	Alkaline phosphatase, tissue-nonspecific isozyme, AP-TNAP, TNSALP, 3.1.3.1, Alkaline phosphatase liver/bone/kidney isozyme, Alpl
Calculated MW	57659
Application Details	Western blot, 0.1-0.5 □g/ml, Rat, Mouse
Subcellular Localization	Cell membrane; Lipid-anchor, GPI-anchor.
Source	Eukaryota
Protein Name	Alkaline phosphatase, tissue-nonspecific isozyme
Contents	Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg Thimerosal, 0.05mg NaN3.
Immunogen	A synthetic peptide corresponding to a sequence at the N-terminus of rat Alkaline Phosphatase(18-32aa, FVPEKEKDPSYWRQQ), different from the related mouse sequence by one amino acid.
Purification	Immunogen affinity purified.
Cross Reactivity	No cross reactivity with other proteins.
Storage	At -20˚C for one year. After r˚Constitution, at 4˚C for one month. It˚Can also be aliquotted and stored frozen at -20˚C for a longer time.Avoid repeated freezing and thawing.

Protein Information

Name	Alpl
Function	Alkaline phosphatase that metabolizes various phosphate compounds and plays a key role in skeletal mineralization and adaptive thermogenesis. Has broad substrate specificity and can hydrolyze a considerable variety of compounds: however, only a few substrates, such as diphosphate (inorganic pyrophosphate; PPi), pyridoxal 5'-phosphate (PLP) and N-phosphocreatine are natural substrates. Plays an essential role in skeletal and dental mineralization via its ability to hydrolyze extracellular diphosphate, a potent mineralization inhibitor, to phosphate: it thereby promotes hydroxyapatite crystal formation and increases inorganic phosphate concentration. Acts in a non-redundant manner with PHOSPHO1 in skeletal mineralization: while PHOSPHO1 mediates the initiation of hydroxyapatite crystallization in the matrix vesicles (MVs), ALPL/TNAP catalyzes the spread of hydroxyapatite crystallization in the extracellular matrix. Also promotes dephosphorylation of osteopontin (SSP1), an inhibitor of hydroxyapatite crystallization in its phosphorylated state; it is however unclear whether ALPL/TNAP mediates SSP1 dephosphorylation via a direct or indirect manner. Catalyzes dephosphorylation of PLP to pyridoxal (PL), the transportable form of vitamin B6, in order to provide a sufficient amount of PLP in the brain, an essential cofactor for enzymes catalyzing the synthesis of diverse neurotransmitters. Additionally, also able to mediate ATP degradation in a stepwise manner to adenosine, thereby regulating the availability of ligands for purinergic receptors (By similarity). Also capable of dephosphorylating microbial products, such as lipopolysaccharides (LPS) as well as other phosphorylated small-molecules, such as poly-inosine:cytosine (poly I:C) (By similarity). Acts as a key regulator of adaptive thermogenesis as part of the futile creatine cycle: localizes to the mitochondria of thermogenic fat cells and acts by mediating hydrolysis of N- phosphocreatine to initiate a futile cycle of creatine dephosphorylation and phosphorylation. During the futile creatine cycle, creatine and N-phosphocreatine are in a futile cycle, which dissipates the high energy charge of N-phosphocreatine as heat without performing any mechanical or chemical work (By similarity).
Cellular Location	Cell membrane {ECO:0000250|UniProtKB:P05186}; Lipid-anchor, GPI-anchor {ECO:0000250|UniProtKB:P05186}. Extracellular vesicle membrane; Lipid-anchor, GPI- anchor {ECO:0000250|UniProtKB:P09242}. Mitochondrion membrane {ECO:0000250|UniProtKB:P09242}; Lipid-anchor, GPI-anchor {ECO:0000250|UniProtKB:P09242}. Mitochondrion intermembrane space {ECO:0000250|UniProtKB:P09242}. Note=Localizes to special class of extracellular vesicles, named matrix vesicles (MVs), which are released by osteogenic cells (PubMed:32710882). Localizes to the mitochondria of thermogenic fat cells: tethered to mitochondrial membranes via a GPI-anchor and probably resides in the mitochondrion intermembrane space (By similarity). {ECO:0000250|UniProtKB:P09242, ECO:0000269|PubMed:32710882}

Background

Alkaline phosphatase, tissue-nonspecific isozyme is an enzyme that in humans is encoded by the ALPL gene. There are at least four distinct but related alkaline phosphatases: intestinal, placental, placental-like, and liver/bone/kidney(tissue non-specific). The first three are located together on chromosome 2 while the tissue non-specific form is located on chromosome 1. Liver/bone/kidney alkaline phosphatase, also known as tissue-nonspecific alkaline phosphatase, acts physiologically as a lipid-anchored phosphoethanolamine(PEA) and pyridoxal-5-prime-phosphate(PLP) ectophosphatase Mice that lack a functional form of this enzyme

show normal skeletal development. This enzyme has been linked directly to a disorder known as hypophosphatasia, a disorder that is characterized by hypercalcemia and includes skeletal defects.

Images

All lanes: Anti ALPL (ABO10498) at 0.5ug/mlLane 1: Rat Cardiac Muscle Tissue Lysate at 50ugLane 2: Rat Brain Tissue Lysate at 50ugPredicted bind size: 57KDObserved bind size: 57KD